We claim:

1. A method of depositing a carbon doped SiO_2 film on a substrate, comprising:

(a) providing a substrate;

(b) flowing oxygen, an inert gas, and one of dimethylsilane (2MS), trimethylsilane (3MS), and tetramethylsilane (4MS) over said substrate;

(c) generating a plasma to deposit a carbon doped SiO_2 film at certain reaction conditions; and

(d) continuing said deposition until an acceptable film thickness of said carbon doped SiO_2 film is reached.

2. The method of claim **1** wherein said carbon doped SiO_2 film is Black Diamond, CORAL, or HOSP.

3. The method of claim **1** wherein oxygen is flowed with 3MS and Ar as the inert gas in step (b).

4. The method of claim **3** wherein the O_2 flow rate is from about 50 to 300 sccm, the 3MS flow rate is between about 400 and 800 sccm, and the Ar flow rate is between about 50 and 300 sccm.

5. The method of claim **1** wherein the inert gas is He, Kr, Ne, or Xe.

6. The method of claim **1** wherein said certain reaction conditions in step (c) are a temperature between about 300°C and 400°C, an RF power from about 600 to 800 Watts, and a pressure between about 1.5 and 4 Torr.

7. The method of claim **3** wherein the flow rate ratio of O_2:Ar:2MS/3MS/4MS is about 1:1.5:6.

8. The method of claim **1** wherein the acceptable thickness is from about 4000 to 8000 Angstroms.

9. The method of claim **1** wherein steps (b) to (d) are performed in a CVD process chamber.

10. The method of claim **1** wherein the deposition rate of said carbon doped SiO_2 film is from about 5000 to 8000 Angstroms per minute.

11. A method of forming a metal interconnect on a substrate, comprising:

(a) providing a substrate and an etch stop layer formed on said substrate;

(b) flowing oxygen, an inert gas, and one of dimethylsilane (2MS), trimethylsilane (3MS), and tetramethylsilane (4MS) over said etch stop layer and said substrate;

(c) generating a plasma at certain conditions to deposit a low k dielectric layer comprised of carbon doped SiO_2 on said etch stop layer;

(d) forming an opening in said low k dielectric layer that extends through said etch stop layer; and

(e) depositing a metal layer on said low k dielectric layer that fills said opening.

12. The method of claim **11** further comprised of planarizing said metal layer with a CMP process.

13. The method of claim **11** wherein said etch stop layer is comprised of silicon nitride, silicon oxynitride, or silicon carbide.

14. The method of claim **11** wherein said low k dielectric layer is comprised of Black Diamond, CORAL, or HOSP.

15. The method of claim **11** wherein oxygen is flowed with 3MS and Ar as the inert gas in step (b).

16. The method of claim **15** wherein the O_2 flow rate is from about 50 to 300 sccm, the 3MS flow rate is between about 400 and 800 sccm, and the Ar flow rate is between about 50 and 300 sccm.

17. The method of claim **11** wherein the inert gas is He, Kr, Ne, or Xe.

18. The method of claim **16** wherein the O_2 flow rate is from about 50 to 300 sccm, the 3MS flow rate is between about 400 and 800 sccm, and the Ar flow rate is between about 50 and 300 sccm.

19. The method of claim **11** wherein said certain conditions in step (c) are a temperature between about 300°C and 400°C, an RF power from about 600 to 800 Watts, and a pressure between about 1.5 and 4 Torr.

20. The method of claim **11** wherein the flow rate ratio of O_2: Ar:2MS/3MS/4MS is about 1:1.5:6.

21. The method of claim **11** wherein the thickness of said low k dielectric layer is from about 4000 to 8000 Angstroms.

22. The method of claim **11** wherein the deposition rate of said low k dielectric layer is from about 5000 to 8000 Angstroms per minute.

23 The method of claim **11** wherein said opening is a contact hole, a trench, or a trench formed above a via.

24. The method of claim **11** further comprised of forming a cap layer on the low k dielectric layer before forming said opening in the low k dielectric layer.

25. The method of claim **24** wherein the cap layer is comprised silicon nitride, silicon oxynitride, or silicon carbide.

26. The method of claim **24** wherein the cap layer is an organic anti-reflective coating (ARC).

27. The method of claim **11** wherein said metal layer is comprised of copper.

28. The method of claim **11** wherein said low k dielectric layer deposition is performed in a CVD process chamber.